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ABSTRACT

A project was conducted by the University of Southwestern Louisiana in cooperation with local adult education programs to develop a delivery system for adult education through expanded outreach opportunities using computer-assisted instruction (CAI) and computer-managed instruction (CMI). During the 3-year project, a homebased CAI delivery system for adult basic education (ABE) and general educational development (GED) students was developed and tested. A curriculum guide for instructors that correlated the computer program lesson material with commonly available resource material in adult education programs in Louisiana was prepared. Thirty-nine adult education students received supplementary computer-assisted instruction during 93 2.5-hour sessions in fall 1981 and spring 1982. Adult students manipulated the computer hardware as they studied the ABE/GED curriculum materials. The average grade-equivalence elevation score for the CAI students was 2.2, which was .8 greater than non-CAI student scores for a group not using the CAI programs, both on a local and statewide basis. It was concluded that undereducated adults can manipulate CAI adult educational systems of the type tested and that the CAI and CMI system seems transportable to a homebased environment. (KC)

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HOMEBASED COMPUTER ASSISTED ADULT EDUCATION PROJECT - PHASE II FINAL PROJECT REPOPT

University of Southwestern Louisiana
Lafayette, Louisiana

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State Board of Elementary and Secondary Education Grant
Special Project ABE-1-82
September 1, 1981, through August 31, 1982

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CONTENTS

		Page
LIST OF TABLES		ii
LIST OF FIGURES		iii
ABSTRACT		iv
Sections		
I.	Brief Description of the Project	1
II.	Program Objectives and Evaluation Plan	2
III.	Methodology	4
IV.	Assessment of Accomplishment of Objectives	7
V.	Ancillary Factors Related to the Overall Success of the Project	23
VI.	Problem Areas	23
VII.	Conclusions and Recommendations	24
	Appendix A	27
	Appendix B	28

TABLES

Table | Page

1. Summary of Student Enrollment in Project Related Classes 12

2. Summary of Responses by Project Participants to the "Revised Brown Scale" 18

FIGURES

Figures Page

1. Average Grade Equivalence Scores for Lafayette Parish Adult Education Students and CAI Students (Extrapolated) 14

2. Average Grade Equivalence Scores for Louisiana Adult Education Students and CAI Students (Extrapolated) 15

HOMEBASED COMPUTER ASSISTED ADULT EDUCATION PROJECT - PHASE II
September 1, 1981, through August 31, 1982
Final Project Report

ABSTRACT

Purpose

The purpose of the multi-year project was to develop a delivery system for adult education through expanded outreach opportunities utilizing contemporary educational technology. The appropriateness and feasibility of computer assisted instruction (CAI) and computer managed instruction (CMI) for undereducated adults in a homebased context was to be determined. The project was to accomplish the following objectives:

1. Development of a homebased computer assisted instruction delivery system for use with undereducated adults.
2. Preparation of a curriculum guide for instructors which will correlate the computer program lesson material with commonly available resource material in adult education programs in Louisiana.
3. Determination of the effectiveness of computer assisted instruction in a normal adult education context.
4. Field testing of the homebased computer assisted instruction delivery system developed in the first objective (proposed for Phase III).

Procedure

The special experimental demonstration project was conducted by the University of Southwestern Louisiana in cooperation with the Lafayette Parish Adult Education Program and the E.S.E.A. Title I Project. The project conducted the following program in order to accomplish project objectives.

In Phase I of the three year project, planning, development, and testing of computer assisted instruction in a traditional adult education part-time setting was conducted. The project capitalized on the availability of computer facilities and the curriculum programs in the Title I Project at little or no cost. During Phase II this experience was continued and the classes expanded to two sites.

As in Phase I, a regularly available computer assisted instruction (CAI) hardware system was coupled with an ABE/GED curriculum available from Computer Curriculum Corporation, Palo Alto, California, to provide CAI on a supplementary basis to students enrolled in an adult education program. A curriculum coordinator and one aide were employed to conduct the CAI sessions and prepare a curriculum guide which would correlate the ABE/GED curriculum with normally available adult education instructional materials. The guide is intended to assist adult education instructors in teaching concepts for which controlled drill and practice is provided by CAI.

During Phases I and II of the project emphasis was placed on determining the feasibility of using CCC's computer system with

undereducated adults, determining the effectiveness of the ABE/GED curriculum, and preparing a revised curriculum guide. Effectiveness was determined by comparing grade equivalence score elevations between "CAI students" and "non-CAI students" in Lafayette Parish and the State.

Results and Conclusions

The adult education students (39) received computer assisted instruction during 93, two and one-half hour sessions in the fall, 1981, and spring, 1982. Adult students manipulated the computer hardware as they studied the ABE/GED curriculum materials. The average grade equivalence elevation score for the "CAI students" was 2.1 over an average attendance period of 65.1 hours. The "CAI student" average was extrapolated in order to make it comparable to average attendance hours for "non-CAI students" in Lafayette Parish and the State. The extrapolated average score for the "CAI students" was 2.2 which was .8 greater than the "non-CAI student" score in Lafayette Parish of 1.4. In a similar manner the extrapolated score for comparative purposes on a statewide basis was 2.2 for the "CAI students" and 1.4 for "non-CAI students", again a substantially higher elevation for the "CAI students" of .8.

A revised draft of a curriculum guide was prepared during Phase II of the project. The guide should be field tested and revised (if appropriate).

It is concluded that undereducated adults can (and do) manipulate a computer assisted adult education system of the type

marketed by Computer Curriculum Corporation. The respective ABE/GED curriculum seems appropriate for use with undereducated adults since the academic growth for "CAI students" substantially exceeded that of "non-CAI students". The increased experience with CAI and CMI during Phase II of the project has increased confidence in the potential for enhancing adult education services when these services are coupled with the regularly available adult education teacher and materials. The CAI and CMI system seems transportable to a homebased environment.

HOMEBASED COMPUTER ASSISTED ADULT EDUCATION PROJECT - PHASE II

September 1, 1981, through August 31, 1982

Final Project Report

I. BRIEF DESCRIPTION OF THE PROJECT

During 1980-81 and 1981-82, the University of Southwestern Louisiana sponsored an experimental demonstration project which attempted to expand and improve the existing adult education delivery system. In a multi-year, multi-agency endeavor the University studied the feasibility of applying computer assisted instruction (CAI) and computer managed instruction (CMI) to adult education. The ultimate goal of the project was to investigate the use of CAI and CMI in a homebased context.

During Phase I a CAI and CMI delivery system was selected and tested with a regular class of adult education students. The CAI program supplemented regular ABE/GED instruction with intensive drill and practice exercises. A curriculum guide which correlated the CAI curriculum to conventional adult education materials was also developed during Phase I. The curriculum guide would assist adult education teachers in correlating their programs with the CAI and CMI programs.

Since Phase I provided only initial experiences with the computer assisted instructional program and its accompanying computer managed instruction program it was decided that more

experience was needed with the programs. The curriculum guide had been prepared in a rough draft edition and needed to be revised and enhanced for better correlation with adult education materials. Homebased equipment was not yet available from the contractor who provided the computer hardware and software. For these reasons Phase II addressed increased CAI and CMI experiences (including an additional remote site) and significant expansion and revision of the curriculum guide.

During Phase II the multi-agency project again pooled resources from the Lafayette Parish Adult Education Program, the Lafayette Parish E.S.E.A. Title I Project, and the College of Education at USL. The Lafayette Parish Adult Education Program established and conducted two normal part-time classes and the E.S.E.A. Title I Project provided computer equipment and facilities. The grantee University provided the technical expertise and leadership for program development. Participants were selected from the adults attending the part-time adult education classes.

II. PROGRAM OBJECTIVES AND EVALUATION PLAN

The purpose of the three-year project was to accomplish the following objectives:

Objective 1 Development of a homebased computer assisted instruction delivery system for use with undereducated adults.

Objective 2 Preparation of a curriculum guide for instructors which will correlate the computer program lesson

material with commonly available resource material in adult education programs in Louisiana.

Objective 3 Determination of the effectiveness of computer assisted instruction in a normal adult education context.

Objective 4 Field testing of the homebased computer assisted instruction delivery system developed in the first objective.

In order to evaluate the effectiveness of the project, the following procedures were established and the project director was to prepare the final summary report. The plan of evaluation for each of the preceding objectives is listed below.

Objectives 1 and 2 were to be evaluated via professional judgment of the quality of the delivery system and curriculum guide developed. Since the system and the guide were to be used in Phase III of the project their adequacy (effectiveness) could not be determined until the completion of these two phases. Basically, the development of a delivery system and a revised curriculum guide will constitute the successful accomplishment of Objectives 1 and 2.

Objective 3 was to be evaluated by comparing the performance of the adult education students enrolled in the computer assisted instruction program with regular adult education students in Lafayette Parish and in the State. Measures conventionally collected from regular adult education students were to be determined for the students involved in the project (a common

measure is grade-equivalence). Equal or greater performance by the students in the project was to constitute successful accomplishment of Objective 3. Supplemental data relative to Objective 3 was to be obtained via a special questionnaire. The questionnaire was to determine the affective disposition of students toward CAI and also to solicit suggestions for implementing CAI with adults.

Objective 4 was originally to be evaluated during Phase II of the project but has now been shifted to Phase III.

III. METHODOLOGY

The proposed three-year project provided the opportunity to study the ultimate development of a delivery system for providing adult education (ABE and GED) on a homebased (homebound) basis employing currently available and developing technology in the field of computer assisted instruction (CAI) and computer managed instruction (CMI). The approach was to emphasize the use of adult educators (and conventionally available adult education materials) for instructional purposes, complemented by computer resources with accompanying programs to assist the instructor in providing and managing the learning experiences of the adult student. In the end the feasibility (pilot and demonstrate) of using computer technology with various types of adult education students on a homebound basis with minimal class attendance or completely homebased with the services of a roving teacher is to be determined.

The computer technology and curriculum of the Computer

Curriculum Corporation, Palo Alto, California, was used in the study. The regional representative of CCC serving the project was Southern Educational Media, Inc., Pearl, Mississsippi. The Adult Basic Education curriculum of CCC was entitled Adult Skills Courses and consisted of four courses: Adult Reading Skills, Adult Language Skills I, Adult Language Skills II, and Adult Arithmetic Skills. The General Educational Development curriculum was included in Textbook for the GED Curriculum and covered the topics English, Social Science, Natural Science, Literature and Mathematics.

The project was to extend from October 1, 1980, through September 30, 1983. The three-year program was divided into three Phases: Phase I, Phase II, and Phase III.

During this year of the project, Phase II, pre-homebased planning and piloting activities were continued as in Phase I but with two part-time classes of ABE and GED adult education students. This was done in order to determine the appropriateness and applicability of computer assisted instruction for use with undereducated adults and to extend the limited experiences obtained in Phase I. In order to minimize costs and maximize the use of existing facilities and programs, project activities were coordinated with the Lafayette Parish School System's Adult Education Program and E.S.E.A. Title I Project. The Adult Education Program established and conducted two normal, part-time adult education classes, one each at Carencro Elementary School and Lafayette Elementary School for

five hours per week, providing teachers, one aide, materials, and administrative support. The classes met from 5:30 pm to 8:00 pm on Tuesdays and Thursdays. Students were selected from the adult education classes to receive computer assisted instruction in the Title I lab facilities at each site. Approximately 30 to 50 students were to be enrolled.

The Title I program provided computer facilities and terminals at no cost to the project. The additional adult education curriculum from CCC was acquired on a rental basis for a maximum of eight months of utilization. The main computer facilities were located on the campus at Carencro Elementary School (along with facilities for the regular meetings of the normal part-time adult education classes) and the remote site with phone line connections was at Lafayette Elementary School.

Plans were made for each student to receive an average of one-half hour per evening (twice a week, for eight months of the project) of computer assisted instruction via the computer facilities available in the Title I labs. In addition to the software the computer facilities at Carencro Elementary School consisted of eight video monitors with key boards, a central data processing unit, and printer. The Lafayette Elementary Schcol site contained eight similar video monitors and a printer.

Coordination of the "computer curriculum" and conventional adult education materials was to be continued during Phase II. A curriculum specialist was employed by the project to determine which adult education materials can be best used to instruct

students who are working with the CCC's computer assisted instruction program and to review the appropriateness of the computer managed instruction component in the program. The curriculum guide was to be revised and expanded to improve its potential as a resource manual for use in implementing computer assisted instruction in other adult education programs. A consultant was to be employed to assist with some phases of the CAI.

In terms of a time line for the project's activities the following schedule was established:

-September 1, 1981, through September 30,1981 - initiating activities, in-service for the staff, and acquisition of adult education CAI and CMI materials.

-October 1, 1981, through May 21, 1982 - computer assisted instruction with adult education students and the correlation of curriculum materials.

-May 22, 1982, through August 31, 1982 - accumulation of information and data, preparation of the revised curriculum guide, evaluation activities, preparation of the Phase II proposal and preparation of the final project report.

IV. ASSESSMENT OF ACCOMPLISHMENT OF OBJECTIVES

In the design of the proposal deliberate plans were made for evaluating each of the project's objectives. The results of the evaluation activities are summarized in this section.

Objective 1 Development of a homebased computer assisted instruction delivery system for use with undereducated

adults.

Objective 2 Preparation of a curriculum guide for instructors which will correlate the computer program lesson material with commonly available resource material in adult education programs in Louisiana.

Evaluation Plan for Objectives 1 and 2 (combined) Evaluation of the delivery system and curriculum guide was to be done via professional judgment. Since the system was projected for application in Phase III of the project their adequacy (effectiveness) could not be determined until completion of Phase III.

Assessment of Objectives 1 and 2

Basically, the continued experience with a delivery system and the revision of the curriculum guide constituted the successful accomplishment of Objectives 1 and 2. The adequacy (effectiveness) of the delivery system and the curriculum guide can best be evaluated during Phase III (1982-83) and Phase IV (proposed extra year for 1983-84). At the end of Phase I of the project a delivery system which could be placed in a home environment and joined to a control center (manned by an adult education teacher) was studied. The technology for accomplishing this currently exists but was not then available from the publisher and provider of the hardware resources, except at high cost. Hence, a terminal (cathode ray tube) and central processor (with adult education curricula) were used in a centralized location. Exclusive of the appropriateness of curriculum, a

delivery system providing computer assisted instruction to adults, along with a computer managed instruction component, was in place and operating at the end of the instructional sessions of Phase I of the project (May, 1981). This experience was continued and expanded to two sites in Phase II.

From informal study by the staff of the adult education project the curriculum leased specifically to provide computer assisted instruction seemed to be appropriate for adults. Lesson materials were adult oriented and did not seem to be psychologically offending to adults by including "childish" material. The adult level in the classes was relatively low and hence material which might be appropriate for middle and late teens was useful in the project. Again during Phase II, not many enrollees were beyond 25 years of age.

A rough preliminary draft of a curriculum guide had been prepared during Phase I. During Phase II the guide was revised and additional sections were prepared by a selected consultant with experience in adult education instruction. The guide is presented in Appendix B.

Objective 3 Determination of the effectiveness of computer assisted instruction in a normal adult education context.

Evaluation Plan for Objective 3 Objective 3 was to be evaluated by comparing the performances of the adult education students enrolled in the computer assisted instruction program with regular adult education students in Lafayette Parish and in the State. Measures conventionally

collected from regular adult education students were to be determined for the students involved in the project (a common measure is grade equivalence). Equal or greater performance by the students in the project was to constitute successful accomplishment of Objective 3. A special questionnaire to determine the affective disposition of students toward CAI was to be administered to participants. Their suggestions toward implementing CAI with adults will be solicited in the form of "likes and dislikes" of CAI.

Assessment of Objective 3

The project provided computer assisted instruction from October 1, 1981, through May 21, 1982, during class meetings on Tuesdays and Thursdays for two and one-half hours per session. Instruction began at Carencro Elementary School on October 1, 1981. Since the Lafayette Elementary School site was new, instruction did not begin until a regular class could be established (November 12, 1981). Computer assisted instruction continued until May 21, 1982. The curriculum coordinator and the lab assistant provided instructional services which complemented the CAI program. A budgeted position for one aide at the Carencro site was eliminated when the curriculum coordinator felt confident that he could adequately attend to the class without assistance.

During that time 55 CAI sessions of two and one-half hours each were scheduled at Carencro Elementary School and 43 similar sessions were scheduled at Lafayette Elementary School. CAI was

not possible at the Carencro site on two occasions and at the Lafayette site on three occasions. Technical difficulties were the problem only once or twice and regular elementary school activities (parent conferences) interrupted classes once or twice at the Lafayette site only. Therefore, students were provided CAI instruction on 53 occasions at Carencro Elementary School and on 40 occasions at Lafayette Elementary School for a total of 93 sessions. During Phase I there had been only 38 CAI sessions. Hence, the amount of experience with CAI was substantially increased in Phase II.

A total of 83 persons was enrolled in the part-time classes. Of this number 52 enrolled in the CAI component. In order to establish a minimum level of participation substantial CAI services was operationally defined as working in the CAI program for at least 90 minutes. On that basis 39 students received substantial CAI services. The other students were either dropped from the program for non-attendance or were recommended for GED testing before completing 90 minutes of CAI time. This was within the goal of 30 to 50 students to be served by the project during Phase II. A summary of student enrollment is presented in Table 1.

The average computer time for the 39 students receiving at least 90 minutes of CAI was 9 hours and 38 minutes. The minimum time was 90 minutes and one student had approximately 27 hours of computer time.

Pre-post testing with the California Achievement Test was

again the basis for determining the effectiveness of the CAI program. Thirty-nine students were available for pre-post testing with the CAT.

TABLE I

SUMMARY OF STUDENT ENROLLMENT
IN PROJECT RELATED CLASSES

	Enrolled in Adult Educ. Class	Enrolled in CAI Program	Received at Least 90 minutes of CAI
Carencro Site			
ABE	41	26	21
GED	16	10	6
Sub-Total	57	36	27
Lafayette Site			
ABE	13	8	7
GED	13	8	5
Sub-Total	26	16	12
TOTAL	83	52	39

The grade elevated scores of the students participating in the CAI program were compared to other non-CAI adult education students in Lafayette Parish and the state of Louisiana. The Lafayette Parish and State statistics were for the most recently available period, 1981.

The average grade elevated score for all students enrolled in the CAI component (with 90 minutes of computer time was 2.1 with 65.1 hours of average total attendance in the regular adult education class. The grade elevated average score for Lafayette Parish non-CAI students was 1.4 with 68.3 hours of average total attendance. The figure for the State was 1.7 with 77.6 hours of average total attendance. In order to compare the CAI grade elevated scores to the non-CAI Lafayette Parish score, the scores were made comparable by an extrapolation procedure. On that basis the CAI program average grade elevated score was 2.2 and the Lafayette Parish score was 1.4.

When the extrapolation was applied to the CAI group and the State group the following resulted. The CAI average grade elevated score was 2.5 and the State score was 1.7. The grade elevated scores are summarized in Figures 1 and 2 (including Phase I results).

FIGURE 1

AVERAGE GRADE EQUIVALENCE ELEVATION SCORES FOR LAFAYETTE PARISH ADULT EDUCATION STUDENTS AND CAI STUDENTS (EXTRAPOLATED)

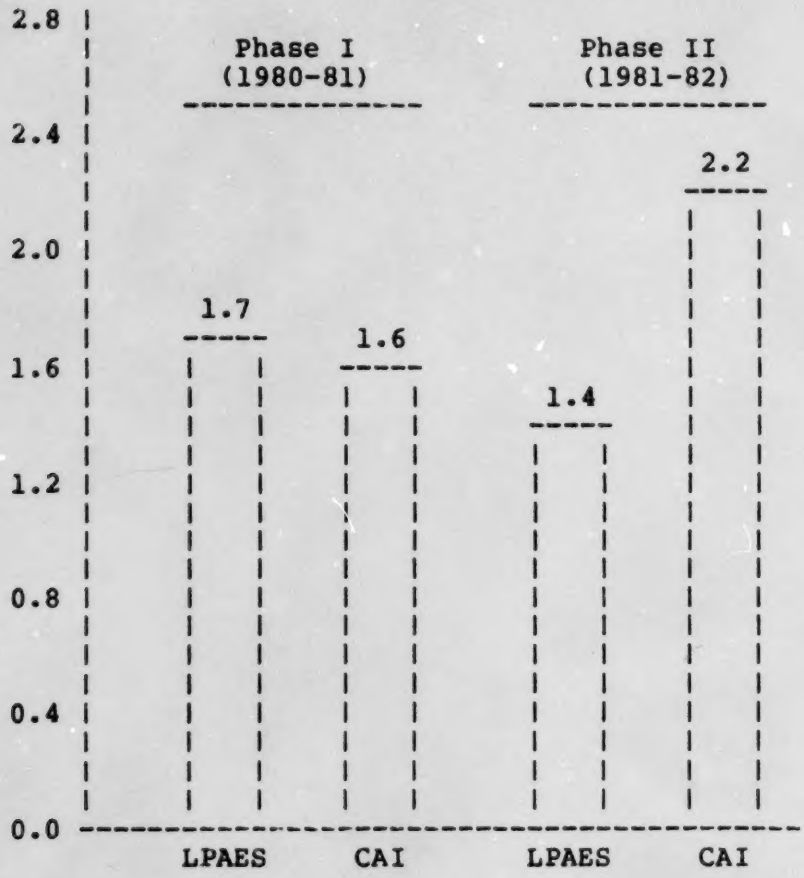
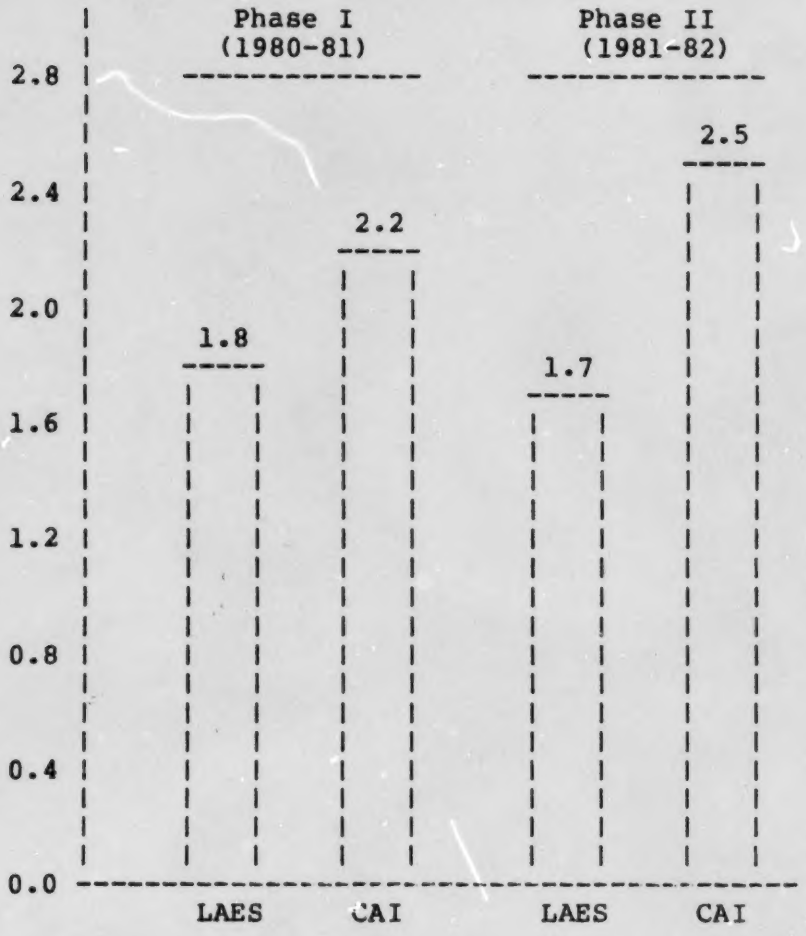


FIGURE 2

AVERAGE GRADE EQUIVALENCE ELEVATION SCORES
FOR LOUISIANA ADULT EDUCATION STUDENTS
AND CAI STUDENTS (EXTRAPOLATED)



The difference between the CAI average grade elevated score and the non-CAI average grade elevated scores for Lafayette Parish and the State was as large or larger than the difference during Phase I. The difference between the CAI score and the Lafayette Parish score was .8 (2.2 - 1.4 = .8) and the difference between the CAI score and the State score was also .8 (2.5 - 1.7 = .8). This difference of almost one grade level is impressive. As previously stated in the Phase I final project report the establishment of statistical significance is difficult due to necessary design and procedures. However, the substantial difference between the grade elevated scores is difficult to ignore or dismiss. There is some evidence that CAI may be an effective instructional supplement in regular adult education programs. In summary, the elevation of grade level for "CAI students" substantially exceeded the Parish and State elevation grade levels.

Efforts were also made during Phase II to determine the affective disposition of students towards CAI. The attitudes of the adult education students who had received substantial services were measured using the "Revised Brown Scale". The scale, modified (for preparing a Master's thesis by Mrs. Ann Justice, an adult education teacher) to measure attitudes of adult education students toward CAI, was administered to 25 participants in the CAI project. Seven were from the Lafayette Elementary School site and 18 were from the Carencro Elementary School site. Each had logged a minimum of 90 minutes in CAI.

Some students who had completed at least 90 minutes of CAI had been recommended for GED testing and were not available to respond to the questionnaire. Other students were no longer attending class. There were a total of 14 students in these two categories.

The "Revised Brown Scale" consisted of thirty comments concerning attitudes towards CAI, one question on what is most liked about CAI, and one question on what is most disliked about CAI. A copy of the scale is in Appendix A.

Responses to each attitude comment were made by circling one of five "feelings" towards CAI. The five choices, in order, were: Strongly Disagree; Disagree; Undecided; Agree; and, Strongly Agree.

The tallied responses by students are summarized in Table 2. Four students omitted a total of five items (13, 18, 20, 21, 30).

The questionnaire was scored by assigning values one through five to the five responses per item, with the highest score (5) assigned to positive responses. For some items, agreement with the statement indicates a positive attitude; for others disagreement indicates a positive attitude. The most positive attitude was assigned a score of five points; the least positive, a score of one point; and, a neutral response a score of three points. The scores were summed for the group to determine the degree of overall positive, neutral, or negative attitude.

TABLE 2

SUMMARY OF RESPONSES BY PROJECT PARTICIPANTS TO THE "REVISED BROWN SCALE"

ITEM	SD	D	U	A	SA	ITEM	SD	D	U	A	SA
1	0	0	0	8	17	16	6	17	2	0	0
2	4	15	4	2	0	17	18	6	1	0	0
3	5	12	2	6	0	18	1	11	4	8	0
4	9	15	0	1	0	19	1	0	3	13	8
5	1	11	9	4	0	20	6	15	3	0	0
6	11	13	1	0	0	21	0	12	9	3	0
7	0	9	3	12	1	22	8	14	2	0	1
8	8	13	2	2	0	23	0	0	1	7	17
9	6	10	5	4	0	24	0	0	6	9	10
10	0	0	7	12	6	25	0	0	4	10	11
11	7	13	3	2	0	26	8	17	0	0	0
12	0	0	1	14	10	27	14	11	0	0	0
13	8	10	3	3	0	28	6	17	2	0	0
14	0	1	2	13	9	29	7	15	2	1	0
15	1	1	8	10	5	30	4	17	1	2	0

NOTE: SD - Strongly Disagree
D - Disagree
U - Undecided
A - Agree
SA - Strongly Agree

On the 30-item questionnaire measuring attitudes toward computer assisted instruction, theoretically for each individual a neutral attitude would be represented by a score of 90 (3 X 30), and the possible extreme scores would be 30 (1 X 30) expressing a negative attitude, and 150 (5 X 30) expressing a positive attitude. An overall possible score was determined for the 25 students responding to the questionnaire, with five items adjusted for only 24 responses. A "perfect" overall positive attitude would be a total score of 3,725; a "perfect" neutral attitude would be a total score of 2,235; and, a "perfect" negative attitude would be a score of 745.

The overall total score was 2,982. When compared to the "perfect" positive score of 3,725 and the "perfect" neutral score of 2,235, it was apparent that the students expressed very positive attitudes towards CAI. Calculation of a "perfect" agree score yields a value of 2,980. Therefore, since the overall total score was 2,982 (which is greater than 2,980) the students expressed attitudes which were equivalent to a minimum of at least an agreement level.

Results from the survey using the "Revised Brown Scale" can be summarized by stating that students generally:

Could do their best work with CAI.

Wanted to find out more about the subject.

Could work at their own speed.

Felt as though they had a private tutor with CAI.

Felt that the material was chosen especially for him or her.

Felt that CAI made it possible to learn quickly.

Were satisfied with what they learned.

Thought that CAI is better than other kinds of instruction.

Would prefer CAI over other forms of instruction in adult education.

Thought CAI was flexible.

Thought CAI was at the right speed for him or her.

Were not afraid that he or she would not understand the material.

Did not feel alone or lonely while taking CAI.

Did not find themselves just trying to get through the material rather than trying to learn while taking CAI.

Did not guess at the answers while taking CAI.

Did not work harder running the terminal than in understanding the material in CAI.

Did not think learning was too mechanical with CAI.

Did not find it hard to think about the material while on the terminal.

Did not think CAI a waste of time.

Did not feel frustrated by the terminal.

Did not feel that interesting material would be made boring by the computer.

Did not think CAI was impersonal.

Did not find CAI boring.

Did not feel that the curriculum was irrelevant.

Did not think typing training was needed to perform easily.

Five of the items received basically neutral scores and therefore were not included in the above list.

Responses to question 31, "What do you like most about

CAI?", were summarized as follows:

"I can work at my own pace and understand what I am doing."

"It teaches better."

"It's fun and I can really get into it."

"It's interesting and it tells me what I did wrong."

"Interesting."

"It is a good way of making someone understand."

"It is an advanced way of teaching."

"Everything."

"It's always right and we have enough time to change an answer if it's wrong."

"You don't have to have someone tell you the answer."

"Because it's better to understand the CAI and it tells you are right or wrong so you won't make the same mistake."

"CAI repeats what I miss."

"TV screen."

"Has helped me a lot in Math and Eng.."

"It is easy to work with."

"It has helped me learn a great deal in Language & Reading."

"I am able to go at my own speed."

"The material that I try to learn."

"It's easy for me to learn on."

"Being able to work at own speed."

"The way it gives you a second chance at a question when you miss."

"It gives you the correct answer when you miss one. It will go over the thing you are having problems with."

Responses to question 32, "What do you dislike most about

CAI?", were summarized as follows:

"They should give more time when they start new parts."

"Nothing."

"Nothing."

"Sitting."

"No color."

"Nothing."

"There is nothing to dislike."

"Nothing."

"Nothing."

"Sometimes it get a little touchy."

"Doesn't give enough time between questions."

"Nothing."

"The time limit."

"No answer."

"Not a thing."

"I don't like to have to make a capital letter."

"It's very hard on capitals and also spelling and punctuating sentences."

The group's attitude towards CAI, through responses on the "Revised Brown Scale", can be summarized as follows;

1. They were not awed by the computer or its terminals.
2. They did not think CAI impersonal, boring, or a waste of time.
3. They found computer assisted instruction individualized, effective, better than other instructional methods, flexible, interesting, satisfying, and fun.

Objective 4 Field testing of the homebased computer assisted instruction delivery system developed in the first objective.

Evaluation Plan and Assessment of Objective 4 This objective is scheduled to be evaluated when CAI is implemented on a homebound basis during Phase III of the project (during 1982-83). A specific evaluation plan was formulated when the respective proposal was prepared.

V. ANCILLARY FACTORS RELATED TO THE OVERALL SUCCESS OF THE PROJECT

Certain activities occurred during the project which are not directly revealed in the evaluation of the objectives. These are the staff activities which indirectly affected the quality of the services rendered by the staff.

During the year the director and curriculum coordinator prepared presentations which were made to state and national adult education personnel. One presentation was made at the Adult Basic Education Conference in New Orleans and one was made at the LAPCAE Convention in Monroe. The director also attended the National Educational Computing Conference.

VI. PROBLEM AREAS

Although the objectives were accomplished, improvement in one area could produce substantial differences. Many adult education programs have experienced attendance problems and the CAI project was, again as in Phase I, no exception. This seems to be a continuing problem in adult education programs.

Homebased computer assisted instruction may be a way of circumventing this problem.

Although CAI was not possible on one or two occasions due to technical difficulties this inconvenience was very minor and probably should be identified as a strong component of the program rather than a problem area. Therefore, equipment failure has been relatively insignificant.

VII. CONCLUSIONS AND RECOMMENDATIONS

This section is dedicated to generalizations about the success of the project and recommendations. The conclusions are organized in a manner which corresponds with the objectives. General recommendations will be presented after the conclusions.

Conclusions

Objective 1 addressed the development of a homebased CAI delivery system for use with adults. During this phase of the overall project, CAI developmental work for use with undereducated adults was continued as in Phase I. The hardware component of a homebased system has not yet been tested but initial experience with the software (ABE and GED curriculum) produced results in terms of academic growth which substantially exceeded that of non-CAI groups in Lafayette Parish and the State.

Objective 2 called for the development of a curriculum guide which would correlate the CAI curriculum to normally available adult education materials. A draft of the curriculum guide was revised and expanded. The guide correlates the CAI curriculum to

commonly available adult education materials. A consultant, currently teaching in adult education, was employed to assist in preparing the guide.

Objective 3 was concerned with the determination of the effectiveness of computer assisted instruction in a normal adult education context. It was found that adults continue to work satisfactorily at the CAI terminals and that many were motivated by the learning format. The data shows that students in CAI experienced academic growth greater than other selected reference groups. In addition, adult students had very positive attitudes towards CAI. At this time it seems safe to conclude that CAI with undereducated adults, coupled with normal adult education materials and instruction, is an effective learning format. However, it must be kept in mind that some adults may not be attracted to this learning format and that CAI is not a panacea for all undereducated adults.

Objective 4 is to field test the homebased computer assisted system developed in Objective 1. This part of the project remains for a future phase and no conclusions can be drawn at this time.

Recommendations

The study initiated in Phase I, and continued in Phase II, of the project should be continued and expanded. CAI has been in use in an increasing number of adult education programs (largely experimentally). This special experimental demonstration approach to the implementation of CAI with these adults (and

extended to home sites) is vital and should be continued.

There is no need at this time for altering or changing the curriculum (software and hardware) used in the project. Project personnel should continue to study the effectiveness of CAI in enhancing ABE and GED programs and in a homebased context. The revised curriculum guide should be field teste

APPENDIX A

SCALE MEASURING ATTITUDES TOWARD CAI

(REVISED BROWN SCALE)

Directions: Please circle the feeling which most closely matches your feeling toward computer-assisted instruction (CAI).

1. While taking computer-assisted instruction (CAI), I feel I want to do my best work.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

2. I am afraid that I may not be understanding tne material while taking CAI.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

3. I am not worried when I miss a question during CAI because no one is watching me.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

4. While taking CAI I feel alone and lonely.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

5. I feel unsure about how well I am doing compared to other students taking CAI.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

6. I find myself just trying to get through the material rather than trying to learn while taking CAI.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

7. While taking CAI I know whether my answer is correct or not before I am told.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

8. I guess at the answers to questions while taking CAI.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

9. When I am trying to learn something it is important to me to know how I am doing compared to other students taking CAI.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

10. As a result of having studied something with CAI, I want to find out more about the subject.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

11. I work harder running the terminal than in understanding the materials in CAI.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

12. I feel I can work at my own speed while taking CAI.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

13. The learning seems too mechanical with CAI.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

14. I feel as though I have a private tutor with CAI.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

15. With CAI I know that the material was chosen especially for me.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

16. I find it hard to think about the material because of the terminal.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

17. CAI is a waste of the student's time.

Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree

18. There have been mechanical problems while taking CAI.

Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree

19. CAI makes it possible for me to learn quickly.

Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree

20. I feel frustrated by the terminal.

Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree

21. CAI is not flexible.

Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree

22. Even interesting material would be boring when presented with CAI.

Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree

23. With all the work I put into it, I am satisfied with what I learned in CAI.

Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree

24. I would say that CAI is better than other kinds of instruction.

Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree

25. With a course like this, I would prefer CAI to other kinds of instruction.

Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree

26. I do not like CAI because it is not personal enough.

Strongly Disagree | Disagree | Undecided | Agree | Strongly Agree

27. CAI is boring.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

28. CAI is not the right speed for me.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

29. Questions are asked with CAI which I feel have nothing to do with the material.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

30. Typing training is needed in order to perform easily in CAI.

Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

31. What do you like most about CAI?

---

32. What do you dislike most about CAI?

APPENDIX B

CURRICULUM GUIDE FOR COMPUTER ASSISTED ADULT EDUCATION

Prepared by the

Homebased Computer Assisted
Adult Education Project
Rolland L. Broussard
Project Director

Compiled by

Charles E. Blanchard
Curriculum Specialist

The University of Southwestern Louisiana
Lafayette, Louisiana
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CONTENTS

Sections		Page
I.	Purpose	1
II.	Computer Curriculum Corporation's Program	1
	1. The Adult Skills Courses	1
	a. ARS	2
	b. ALS I,II	4
	c. AAS	5
III.	The GED Course	7
IV.	Correlation of ABE-CAI	9
	1. ARS and ABE Instructional Materials	9
	2. ALS and ABE Language Instructional Materials	17
	3. AAS and ABE Mathematics	24
V.	The GED Course and GED Materials	30

CURRICULUM GUIDE FOR
COMPUTER ASSISTED ADULT EDUCATION

Purpose

This handbook attempts to correlate some of the available ABE and GED instructional materials for the Louisiana Adult Education Program with the Computer Curriculum Corporation's (CCC) Adult Skills Courses and GED Curriculum.

Computer Curriculum Corporation's Program

Instructional Management. The CCC's Program employs computer assisted instruction (CAI) with terminals for instruction and a computer printer for copywork. The program also contains a computer management system (CMI) which prepares automated reports on classes and (or) individuals. These reports are readily available and can be displayed on the terminal screen or typed on the printer for record keeping.

The Adult Skills Courses. The CCC's Program consists of the three basic skills courses listed below.

ARS - Adult Reading Skills
ALS I,II - Adult Language Skills
AAS - Adult Arithmetic Skills

These courses were developed to meet the educational needs of adults who need to develop basic reading, language, and arithmetic skills. Each course can be used alone or with ABE materials as preparatory courses for the GED curriculum. Each course is self contained and organized into a sequence of

exercises within one skill area. The exercises are arranged in order of increasing difficulty. The structure of the program takes into account differences between the abilities of different students and a single student's varying abilities in different subskills of the same subject. Student record sheets are available for each of the three skills courses from the project office or CCC.

ARS. The Adult Reading Skills course provides drill and practice in skills equivalent to those expected of students who have successfully completed elementary school. Students who complete ARS should be ready to enter GED Literature, GED Natural Science, and GED Social Science courses.

Although written on an elementary level, the subject matter is oriented towards young adults. Portions of the curriculum introduce vocabulary required for consumer education.

ARS has five strands or skill areas. They are:

A. Word attack (suffixes, prefixes, root words, compounds, contradictions)

B. Vocabulary (vocabulary study, homonyms, synonyms, antonyms)

C. Literal comprehension (categories, transformations, questions and answers)

D. Interpretive comprehension (fact and opinion, primary inference, character study, analogies, slanted writing, metaphor, simile)

E. Work-study skills (alphabetizing, guide words and letters, finding information)

In creating a lesson in the ARS course, as well as the other skills courses, the program usually selects exercises from the different strands in random order. Randomization keeps the exercises varied and interesting, and it promotes long-term retention of knowledge.

Movement through a strand depends on the number of correct responses in that strand within the lesson. A student may move forwards or backwards in a strand. Criteria for fast forward motion are built into the course(s) and are active at all times. Lesson length may be varied but is normally set at 10 minutes.

Progress reports on individual students or entire classes can be produced and printed as often as needed. Below is a sample of an ARS report.

ADULT READING SKILLS REPORT

ID	SES	TIME	TO	LST	COR	A	B	C	D	E	AVG
	LAVERNE DAWSON										
+ 966	5	0:50	1	31	26	15	17	18	14	26	18
	JIM FERGUSON										
*2061	9	1:52	0	11	10	53	47	48	52	83	56

ID	The student's ID number.
SES	Number of sessions the student has taken in this course.
TIME	Cumulative time spent working in this course.
TO	Number of time-outs during the last session. A time-out occurs when a student does not complete an item within the set time limit.
LST	Number of items presented in the last session.
COR	Number of items answered correctly in the last session.
A-E	The percentage of the course completed in each of the five strands.
AVG	The average percentage of the course completed.
+	The student signed on for a lesson on the day of the report.
*	The student stopped the last lesson ahead of time.
TP	The student has completed work in this strand.

A student "tops-out" of the ARS course (and also the A.L.S. I,II courses) when movement through each strand is completed.

ALS I and ALS II. The Adult Language Skills courses are basic language arts courses for adults. ALS I covers language skills comparable to those taught in elementary grades. ALS II progresses to more complex materials, also at the elementary level. The content of both courses is oriented toward topics of interest to adults. The courses concentrate on standard English usage, but include a strand on the mechanics of capitalization and punctuation.

Each course consists of nine strands. They are:

A. Principal parts of verbs
B. Verb usage
C. Subject-verb agreement
D. Pronoun usage
E. Contractions, possessives, and negatives
F. Modifiers
G. Sentence structure
H. Mechanics
I. Topics (short lessons on topics covered in other strands)

As in the ARS course, students working in the ALS curriculum receive a mixture of all strands during every session and their position in a particular strand is determined by their performance in that strand alone.

Below is a sample of an ALS I Progress Report.

ADULT LANGUAGE SKILLS I REPORT

ID	SES	TIME	TO	LST	COR	A	B	C	D	E	F	G	H	T	AVG
	LAVERNE DAWSON														
+996	19	3:04	1	19	14	20	25	15	21	21	--	--	26	24	22
	CARMEN RODRIGUEZ														
• 968	77	12:45	1	27	19	43	42	47	39	65	30	31	47	36	42

ID	The student's ID number.
SES	Number of sessions the student has taken in this course.
TIME	Cumulative time spent working in this course.
TO	Number of time-outs during the last session. A time-out occurs when a student does not complete an item within the set time limit.
LST	Number of items presented in the last session.
COR	Number of items answered correctly in the last session.
A-T	The percentage of each strand that the student has completed.
AVG	The average percentage completed in the course.
+	The student signed on for a lesson on the day of the report.
•	The student stopped the last lesson ahead of time.
TP	The student has completed the work in this strand.

AAS. The Adult Arithmetic Skills course builds proficiency in the basic computational skills that adults need for both practical and educational purposes. The course is designed to diagnose the weaknesses and strengths in the student's arithmetic background, initiate instruction at the individual's level of achievement, and move the student to the mastery of the basic computational skills.

The AAS Course consists of the following eight strands.

addition

subtraction

multiplication

division

equations

fractions

measurement

decimals

Placement in a given strand is independent of placement in all other strands. Movement through a single strand depends only on performance in that strand.

A lesson consists of a mixture of strands. During a lesson, the program presents exercises drawn at random from all the strands at the students's level.

Students can take lessons in fixed drill as well as in tne regular mixed drill mode. In mixed drill, students see exercises drawn from all the strands at their level; in fixed drill, tney see exercises from one strand only.

Below are samples of AAS reports.

ADULT ARITHMETIC SKILLS REPORT

ID	SES	TIME	TO	LST	COR	ADD	SUB	MUL	DIV	EQN	FRA	MEA	DEC	AVG
	YVONNE ZUCHOWSKI													
+496	26	4:09	0	36	32	18	17	17	14	15	16	16		16.1
•	ROLAND REID													
+572	21	3:27	0	47	43	21	21	19	20	23	18	20		20.3

ID	The student's ID number.
SES	Number of sessions the student has taken in this course, including sessions on fixed strands.
TIME	Cumulative time spent working in this course, not including time spent on fixed strands.
TO	Number of time-outs during the last session. A time-out occurs when the student does not complete an exercise within the time limit.
LST	Number of exercises presented in the last session.
COR	Number of exercises answered correctly in the last session.
ADD-DEC	The level the student has reached in each strand (1-36).
AVG	The student's average level.
+	The student signed on for a lesson on the day of the report.
•	The student stopped the last lesson ahead of time.
TP	The student has completed work in this strand.

ADULT ARITHMETIC SKILLS FIXED STRANDS REPORT

ID	SES	TIME	TO	LST	COR	FIXED	MIXED	AVG
	ROLAND REID							
+572	22	3:27	0	40	37	FRA 19	18	20.3

ID	The student's ID number.
SES	Number of sessions the student has taken in this course.
TIME	Cumulative time spent working in mixed drill.
TO	Number of time-outs during the last session.
LST	Number of exercises presented in the last session.
COR	Number of exercises answered correctly in the last session.
FIXED	Strand and level reached in the last fixed drill session.
MIXED	Level in the strand in mixed drill.
AVG	The student's average level in mixed drill
+	The student signed on for a lesson on the day of the report.

A student "tops-out" of the AAS course when each strand is completed.

The GED Course. Computer Curriculum Corporation has designed a comprehensive curriculum to prepare students who have completed the Adult Skills Courses for the GED (General Educational Development) examination.

There are several forms of the GED examination. Each form is a test battery consisting of the following five tests:

Writing Skills Test

Social Studies Test

Science Test

Reading Skills Test

Mathematics Test

The CCC's GED curriculum contains five sections, one for each test in the GED examination:

GED English

GED Social Science

GED Natural Science

GED Literature

GED Mathematics

Each section is composed of lessons. Each lesson is student-paced and student controlled.

A special lesson on how to take the GED test is included. This builds confidence for the actual GED examination.

Unlike the Adult Skills Courses in which no supplementary

material is needed, the GED curriculum requires the Textbook for the GED Curriculum, third edition, as a reference source in working through the curriculum.

A GED lesson usually requires reading from selected passages from the textbook before the student is directed by the computer to begin a lesson.

A lesson consists of a set of questions that refer to tne corresponding textbook passage. Questions are not randomized as in tne Adult Skills Courses.

Students can move through the GED sections and lessons in any desired order. Student record sheets are available for each GED section to help students keep track of which lessons they have already completed. A student record sheet for the GED program is made available by CCC as part of their materials package.

The program can prepare reports on individuals or on classes at anytime. See the sample report below.

GED REPORT

ID	SES	TIME	TO	LST	COR	LAST	INTRO	PREP	SOC	NAT	LIT	MATH	ENG
	CARMEN TRUJILLO												
+235	24	7:57	0	23	21	SOC	2	0	35	1	11	0	0
•	ARNOLD WATERMAN												
+484	17	5:14	0	17	13	NAT	2	0	0	24	0	2	14.1

ID The student's ID number.

SES Number of sessions the student has taken in the GED Curriculum

TIME Cumulative time spent working in all GED sections.

TO Number of time-outs during the last session. A time-out occurs when a student does not complete an item within the set time limit.

LST Number of questions presented in the last session.

COR Number of questions answered correctly in the last session.

LAST The GED section the student worked in most recently.

INTRO-ENG The number of the lessons the student last worked on in each of the GED sections.

INTRO-2 lessons NAT-30 lessons
PREP-1 lesson LIT-60 lessons
SOC-30 lessons MATH-50 lessons
ENG-92 lessons, from 1.1 to 24.5

+ The student signed on for a lesson on the day of the report.

• The student stopped the last lesson ahead of time.

Students should be able to pass a particular GED test when they score 50% or higher on a majority of lessons in the second half of the corresponding course in the GED curriculum. A student who scores 50% or higher on three consecutive lessons in the second half of a section of the curriculum is ready for the GED test. The probability of success on the GED increases with the number of lessons taken and completed with good scores.

Correlation of ABE-CAI.

In the traditional Louisiana Adult Education Programs, students work independently or in small groups through workbooks and other resources under the guidance of Adult Education Instructors in preparation for the GED examination.

The CCC's Skills Courses curriculum and GED curriculum is structured so that a correlation guide between the curriculum and adult education materials is feasible. Using such a guide, the instructor or curriculum coordinator can prescribe lessons which correlate to a given CCC lesson or lessons.

ARS and ABE Instructional Material. The Adult Reading Skills program was not intended for use with total non-readers. In order to function successfully in the program, the student must have had prior training in the basic sight words and in phonics skills. For this reason, a review of one of the basic sight word lists (Dolch, Kucera-Francis) is recommended for all students prior to entering the program. Adult Basic Education materials selected to supplement the ARS program range in reading level from second to seventh grades. They have been correlated

as nearly as possible with the level of difficulty of the ARS lessons.

With one exception, the supplemental materials were prepared specifically for use with adult students. The Crosswinds One workbook (Bowmar/Noble Reading Program) was prepared for junior high classrooms, but has been found by the writer to be useful and popular with young adults in ABE small group and prescriptive settings.

As in the other Skills Courses, progress reports on individual students can be obtained at any time, allowing the instructor to prescribe developmentally or for remedial purposes those materials which correlate with the student's progress level (on a percentage basis as provided by the CMI component).

The following reading instruction materials were selected to be correlated with the ARS program.

Steck-Vaughn Co., 1980.

Applying Reading Skills

Can You Top This?

Devilrow

Night Crossing

Steck-Vaughn Co., 1978.

Steck-Vaughn Adult Reading: 1400 - 2800

Steck-Vaughn Co., 1974.

Practice in Reading

Steck-Vaughn Co., 1978.

Spelling Steps

Bowmar-Noble Publishers, Inc., 1979

Bowmar/Noble Reading Program: Crosswinds One

Below are Correlation Tables for ARS and ABE materials:

(1) Steck-Vaughn Adult Reading

(2) Practice in Reading

(3) Crosswinds One

(4) Spelling Steps - Part 3

(5) Applying Reading Skills

STRAND A: WORD ATTACK

%	Skill	(1) 1400	(2)	(1) 1600	(1) 2100	(3)	(4)
0-60	Final Consonant	49-62					
	Compound Words		108,110	13,14			
	Con-tractions			15,16			
	Prefix: un-				3,4		
	Context Clues	-Most lessons teach this skill-					
	Rhyming Words	-Most lessons teach this skill-					
61-90	Con-fractions			15-16			
	Prefixes: un-,dis- in-,pre-				3,5, 12,14		
	Suffixes: -er,-ment, -ful		67,74 95		42,43, 47,48, 53		
91-92	Prefixes: mis-,dis-				21	74	19-22, 31-34
93-100	Prefixes: mis-,dis-, pre-,in-				5,12, 14,21	74	10-13, 19-22, 31-34

STRAND B. VOCABULARY

%	Skill	(2)	(1)1600	(1)2100	(3)	(4)
0-60	Names of Months	98-100				
	Names of Days	64,65				
	Inflectional Endings: -s, -ing,-ed,-y, -er	67,74 95	17,18, 26			
	Synonyms/ Antonyms			64-72		
61-90	Vocabulary				8,11,36	
	Synonyms/ Antonyms			64-72	50,85,88 109,115, 120	
91-92	Vocabulary				64,113, 123	
	Homonyms			75-82	57	
93-100	Synonyms/ Antonyms			64-72	50,85, 88,109, 115,120	124,125 128,129 130

STRAND C: LITERAL COMPREHENSION

%	Skill	(2)	(1) 2200	(3)
0-60	Recognition of Specific Detail	Most lessons teach this skill	41-45	
	Sentence Transformation		48-52	
61-90	Recognition of Specific Detail		53-60	7,14,21,28, 35
	Sentence Transformation		61-68	
91-92	Recognition of Specific Detail		69-75	49,56,63, 70,77,84
	Sentence Transformation		76-85	
93-100	Recogniton of Specific Detail			87,90,94, 101,112,119

STRAND D: INTERPRETIVE COMPREHENSION

%	Skill	(5) Can You Top This?	(5) Devilrow	(1) 2300	(1) 2400	(3)	(1) 2800
0-60	Inference: Drawing Conclusions	Stories are followed by brief exercises.					
61-90	Inference: Drawing Conclusions				10-17	72,75, 82,86	
	Inference: Main Idea			2-12		12-16	
	Inference: Cause&Effect				18-31		
91-92	Inference: Drawing Conclusions				32-69	89,93, 104, 107	
	Inference: Cause&Effect					54,58, 61,65	
	Inference: Main Idea			13-25		19,23, 37	
	Fact/Opinion					40,44, 47,51	45-48
	Recognizing Propaganda						34-44

STRAND E: WORD-STUDY SKILLS

%	Skill	(1) 2600	(3) Crosswinds
0-60	Alphabetical Order: Single Letters	3-8	
	Alphabetical Order: Words by First Letter	8,9	
	Locating Information		
61-90	Alphabetical Order: Words by 2nd, 3rd, and Letter	10-11, 16-17	3
91-92	Alphabetical Order: Guide Words	46-56	
	Locating Information: Table of Contents	23-27	20
	Locating Information: Telephone Directory	12-15	28
93-100	Locating Information: Newspapers	35-42	14,45, 56,63
	Locating Information: Dictionaries	60-68	50
	Locating Information: Multiple Sources	70-76	45,52,55

ALS and ABE Language Instructional Materials. The nine strands in the Adult Language Skills courses were listed earlier in this guide. Each ALS session begins with a brief lesson from Strand T, Topics, presenting concepts examples, and exercises on particular topics. Topic lessons are followed by exercises selected at random from Strands A through H.

Because Strand T is not randomized, it is easily correlated with adult education instructional materials. By determining from the Adult Language Skills teacher's report the student's percentage of completion of Strand T, the instructor can prescribe ABE materials which match the student's current level in the ALS curriculum.

The ALS I teacher's report for Laverne Dawson (see p. 5) indicates that she has completed 24 percent of the Topic Strand (Strand T). From the Correlation Tables for ALS I , the teacher will note that the student is nearing completion of Level 1 (0-30%). He will prescribe completion of any unfinished work on the indicated pages of Language Exercises Tan, Red, or Blue books. He may wish to administer a test or review constructed from the worktext materials. He will note that the student will soon be going into Level 2 of ALS I, requiring a new prescription based on the Correlation Tables.

The following language instruction materials were selected to be correlated with the ALS program.

Steck-Vaughn Company, 1978.

Language Exercises

Tan Book

Red Book

Blue Book

Gold Book

Steck-Vaughn Company, 1979.

Action English Series

Actions = Verbs and Adverbs

Names in Action = Nouns, Pronouns, Adjectives

Sentences in Action = Punctuation and Sentence Structure

Steck-Vaughn Company, 1978.

Language in Daily Living

Book 1 = Verbs and Subjects

Book 2 = Phrases, Clauses, and Verbals

Book 3 = Pronouns, Modifiers, and Verbals

Book 4 = Punctuation and Capitalization

Below are Correlation Tables for Adult Language Skills I, II and Adult Basic Education materials:

(1) *Language Exercises*

(2) *Action English Series*

(3) *Language in Daily Living*

Adult Language Skills I
Strand T - Topics
Level 1: 0-30%

Topics in Sequence	(1) Tan Book	(1) Red Book	(1) Blue Book
Mechanics	5,9,10,17, 49,50		
Principal Parts of Verbs	81,82	23,25,74	14,15,40
Contractions, Possessives, Negatives	43	61-64	
Subject Verb Agreement	85	34,35	

Adult Language Skills I
Strand T - Topics
Level 2: 31-70%

Topics in Sequence	(1) Tan	(1) Red	(1)Blue	(2)Actions
Pronoun Usage		70,71	60,61	
Subject-Verb Agreement		26	6-8	
Contractions, Possessives, Negatives	30-32	65	55	82-84
Modifiers	73	18,19		

Adult Language Skills I
Strand T - Topics
Level 3: 71-100%

Topics in Sequence	(1) Tan	(1) Red	(1) Blue	(2) Actions	(2) Names
Mechanics	7,8,14, 15,25, 54,55	3-13	3,4,9-12		
Subject-Verb Agreement			117-119	15-19	
Contractions, Possessives, Negatives	28,44, 45	61-63	49-51, 56		25-30
Pronoun Usage	67,74				47-50, 53-58
Modifiers	75	76,79-82	88-95, 98-101	71-81	69-76
Verb Usage	89-90	77,78	111,112	65-70	

Adult Language Skills II
Strand T - Topics
Level 1: 0-20%

Topics in Sequence	(1) Red	(1) Blue	(1) Gold
Mechanics	3-6,11,13, 20	3-5,11,13, 52-54	3-6,10,42
Subject Verb Agreement	34,35	6,7	
Contractions, Possessives, Negatives	61-65	49-51	61-63

Adult Language Skills II
Strand T - Topics
Level 2: 21-32%

Topics in Sequence	(1) Red	(1) Blue	(1) Gold
Contractions, Possessives, Negatives		55,56	28,29
Mechanics	7,89-92	9,120-123	116-117
Pronoun Usage	70-71	60-61	
Subject Verb Agreement	26	8	14

Adult Language Skills II
Strand T - Topics
Level 3: 33-48%

Topics in Sequence	(1) Red	(1) Blue	(1) Gold	(3) Book 1	(3) Book 2
Subject-Verb Agreement			12-14	54-58	
Principal Parts of Verbs		83	68		
Modifiers	18,76, 79-82	63,88-94,98-101	80-82, 86-90		56,57
Verb Usage	78	112,113	74		

Adult Language Skills II
Strand T - Topics
Level 4: 49-63%

Topics in Sequence	(1)Blue	(1)Gold	(3)Book1	(3)Book2	(3)Book3
Subject-Verb Agreement	117,118		56-58		
Sentence Structure	22,23	41		27-29	
Verb Usage	112,113	74	28-37		
Mechanics	11,12	10,11			72-74
Principal Parts of Verbs	14-16, 37-41, 76-87	15-22, 67-75			

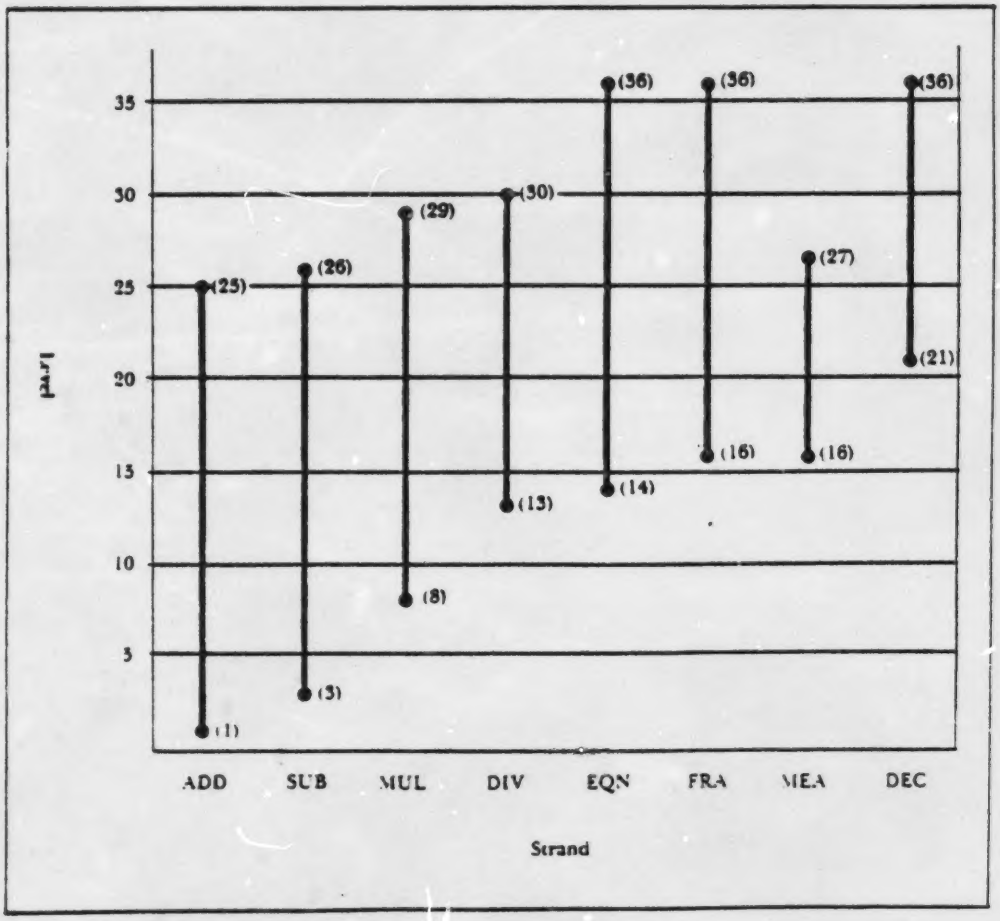
Adult Language Skills II
Strand T - Topics
Level 5: 64-81%

Topics in Sequence	(1) Gold	(3) Book 1	(3) Book 3
Principal Parts of Verbs	15-22,67-75	15-25	
Verb Usage		28-38	
Contractions, Possessives, Negatives			60
Pronoun Usage	78,79		5-13, 16-19
Subject-Verb Agreement	11-14	62-70	
Modifiers	86-88		35-37,56

Adult Language Skills II
Strand T - Topics
Level 6: 82-100%

Topics in Sequence	(3) Book 1	(3) Book 2	(3) Book 3	(4) Book 4
Modifiers			35-43, 46-50	
Verb Usage	28-38, 42-44			
Sentence Structure		27-29		
Mechanics				9-11, 72-78

AAS and ABE Mathematics. There are 36 levels in the AAS course. Each strand starts at different levels (except the fractions and measurement strand) as shown in the figure below.



Each exercise in each strand can be correlated to similar exercises in ABE materials and workbooks. Regularly available adult education materials usually include the following.

Steck-Vaughn Company, 1980.

Working with Numbers:

Line Book

Triangle Book

Rectangle Book

Pentagon Book

Hexagon Book

Heptagon Book

Octagon Book

Refresher Book

Laidlaw Company, 1968

Math 1

Math 2

Cambridge Press, 1980.

Basic Skills with Whole Numbers

Basic Skills with Fractions

Basic Skills with Decimals and Percent

Steck-Vaughn Company, 1978.

Mathematics in Daily Living

Book 1: Fractions

Book 2: Decimals and Percent

Book 3: Measurement and Geometry

Book 4: Fundamental Algebra

Below is a correlation table for AAS and ABE materials:

(1) Working with Numbers Series.

(2) Mathematics in Daily Living Series.

ADDITION STRAND

Levels	Description	(1) Line	(1) Tri-	(1) Rect-	(1) Pent-	(1) Hex-
1-4	Two Addends: One or Two Digits	18,36-41,43,45,48	11			
5-8	Two to Four Addends: One to Three Digits	65,68,71,78	12,16,17			
9-12	Two Addends: One to Three Digits - Regrouping in Tens/Hundreds Position	136	18,25,26,35,38,52,61			
13-16	Two Addends: One to Three Digits - Regrouping in Ones/Tens Position		67,69,71	4,5		
17-20	Two or Three Addends: Two or Three Digits		75	6-9	6-10,18,19	
21-25	Two to Four Addends: Two to Four Digits			10,11	22-25,37	10-12

SUBTRACTION STRAND

Levels	Description	(1) Line	(1) Tri-	(1) Rect-	(1) Pent-	(1) Hex-
3-6	One Digit from One or Two Digits	18,29, 39,52				
7-10	One or Two Digits from Two Digits	64,78, 82-84, 87,88, 116, 117	13,14			
11-14	One or Two Digits from Two or Three Digits - Regrouping	118	20,22, 25,26, 33,38			
15-18	Two or Three Digits from Two or Three Digits - Regrouping	133	65,66, 73,76			
19-26	Two to Four Digits from Three or Four Digits - Regrouping			12-17	11-13, 38	13-15

MULTIPLICATION STRAND

Levels	Description	(1) Tri-	(1) Rect-	(1) Pent-	(1) Hexagon
9-12	Multiplication Facts	82,91			
13-16	Two Digits by One Digit		18-20		
17-24	Two to Four Digits by One or Two Digits		27-37, 45-48, 56-60		
25-29	Three or Four Digits by Two Digits		83-87, 90-94	15,16, 30-36, 40-42	16-18

DIVISION STRAND

Levels	Description	(1) Rect-	(1) Pent-	(1) Hexagon	(2) Fract-
13-16	Two or Three Digits by One or Two Digits - Remainder of 0	21,22, 23,35, 37,39- 41,48- 52	43,44- 47		
17-20	Two to Four Digits by One or Two Digits - Remainder of 0	54,65, 66-82	48		
21-24	Three or Four Digits by One Digit	105-109			
25-28	Three or Four Digits by Two or Three Digits	110-117	49-55, 63-70, 72-75		
29-30	Five or more Digits by Three or Four Digits		76-78	19-24	5,6

FRACTION STRAND

Levels	Description	(1) Pent-	(1) Hexagon	(1) Hept-	(2) Fract-
16-17	Addition and Subtraction with Like Denominators	82-85, 86,87			28-31
18-19	Addition and Subtraction of Mixed Fractions with Like Denominators	88,89	25,26		32
20-24	Equivalent Fractions and Mixed Fractions	90-100	27		
25-30	Multiplication and Division of Fractions	103	47,48, 56-65		
31-34	Addition and Subtraction of Fractions with Unlike Denominators		28-30		43-47
35-36	Addition and Subtraction of Mixed Fractions with Unlike Denominators			11-14	48-100

DECIMAL STRAND

Levels	Description	(1) Pent- agon	(1) Hexagon	(1) Hept- agon	(2) Dec-/ Percent
21-24	Addition and Subtraction	104-112	69,70		
25-28	Changing Fractions to Terminating Decimals		71-72		1-25
29-32	Multiplication and Division	73-76, 80-84	16,17		45-85

MEASUREMENT STRAND

Levels	Description	(1) Rectangle	(1) Hexagon	(1) Heptagon	(2) Measurement
16-23	Standard Conversions	96	94-96		1-5
24-27	Metric Conversions	97,98	92,93	15	6-18

Since an AAS progress report on a student can be obtained at anytime, a prescription for each student on available mathematics materials can be made to match present levels in the AAS curriculum. For example, the AAS report for Roland Reid, cited previously, indicated that his average for the course was 20.3 and that his lowest level was 18 in the fractions strand. Using the Prescription Tables, Roland would be prescribed to work pp. 67 to 74 in the WWN Triangle Book, pp. 19 to 65 in the WWN Rectangle Book, pp. 4 to 14 in the WWN Pentagon Book, or pp. 40 to 42 in the MDL Fractions. (See sample prescription sheet on p. 31)

The GED Course and GED Materials. Specific correlation tables for the GED Course and available GED materials are not prepared in the same manner as that for the ABE materials. Instead, instructors are referred to commonly available GED adult education materials. Experience with the curriculum guide may prove that detailed correlation would enhance the instructional program.

SAMPLE

PRESCRIPTION SHEET
CCC/ABE

Student: Roland Reid
ID Number: 572

Date	Course	Workbook	Pages
Feb. 3	AAS (20.3)	WWN Pentagon	4-14

Comments:

Available GED materials include the following:

Steck-Vaughn Co., 1978.

Preparation for High School Equivalency in:

Book 1: Writing Skills

Book 2: Social Studies

Book 3: Science

Book 4: Reading Skills

Book 5: Mathematics

General Review

McGraw-Hill Paperbooks, 1979.

The Pre-GED Basic Skills Series::

The Social Studies Test

The Science Test

The Basic Reading Skills Test

The Basic Science Skills Test

The Basic Social Studies Skills Test

The Basic Mathematics Test

Cambridge Press, 1977.

The GED Reading Skills Test

The GED Science Test

The GED Social Studies Test

The GED Reading Skills Test

The GED Writing Skills Test

The GED Mathematics Skills Test